HDR test flight report

Paweł Jałocha, 12.02.2026

Test setup

Date: 12 of February 2026, **Time**:11:00-12:00 and 13:00-14:00UTC

Pilot: Mirosław Kaszuba, e-mail: miras.prv2@gmail.com

Aircraft: Aeroprakt A22

Flight path: from Łęg Tarnowski to Zator airfield and back

Airfield: Łęg Tarnowski, north of Tarnów, South-East Poland

Transmitters:

1. OGN-Tracker and ADS-L on M-Band, external antenna

2. ADS-L HDR-only on O-Band, external antenna

3. ADS-L HDR-only on O-Band, internal antenna

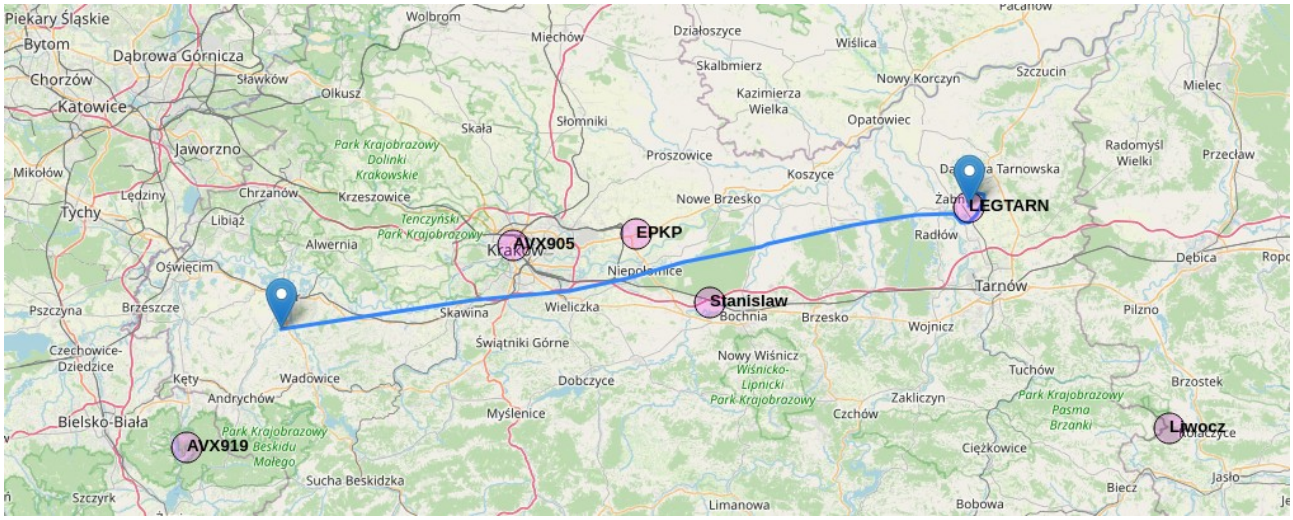
Transmitted power: nominal 22dBm, unverified, SX1262 radio chip

Transmitter antenna: external, at the bottom of the aircraft, and internal, with the transmitter strapped the seat belt, see picture

Participating OGN receivers:

Name	Antenna	Minimum distance	Notes
LEGTARN	8dBi +LNA	0 km	Improved since previous test: longer antenna and added LNA
Stanislaw	8dBi +LNA	10km	
EPKP	9dBi	10km	
AVX919	6dBi +LNA	30km	On a 760m mountain
Kasprowy	8dBi	80km	On a 1800m mountain
EPKA	9dBi +LNA	80km	
Liwocz	7dBi +LNA	40km	

Flight path



Track of the return flight, with the receiver positions marked: notice the Liwocz receiver on the right side, relative to the aircraft heading, which received the internal transmitter at 50km distance.

Observations

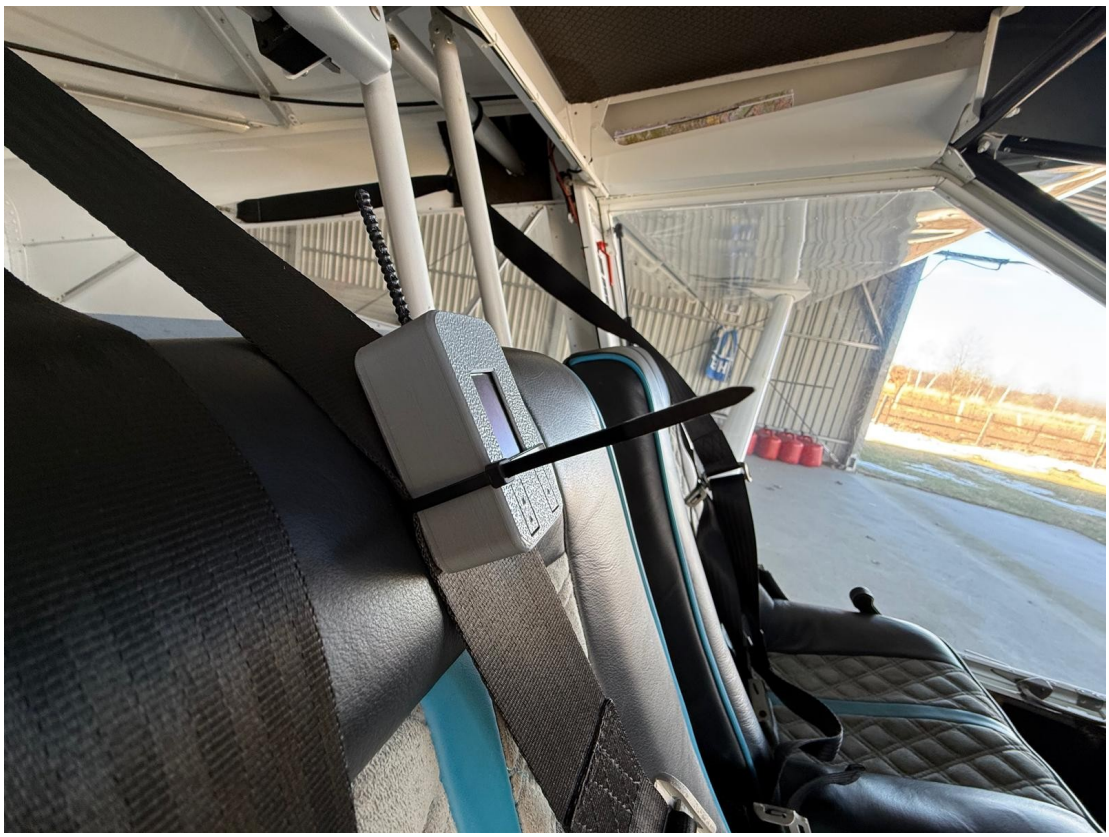
External antenna transmitter performed like in the previous test flight, reception range was 40km by the Stanislaw OGN receiver. There were more receivers active during this test and they performed less good achieving a bit more than 20km range.

The transmitter with the antenna inside the cockpit achieved about twice shorter shorter range with one exception where it actually scored a bigger range. We can only explain it by the interaction of the internal antenna with the metal structure of the aircraft which formed a directional transmission pattern towards the right side of the aircraft, and the receiver which could then receive the signal from a longer distance was indeed on same side.

Conclusions

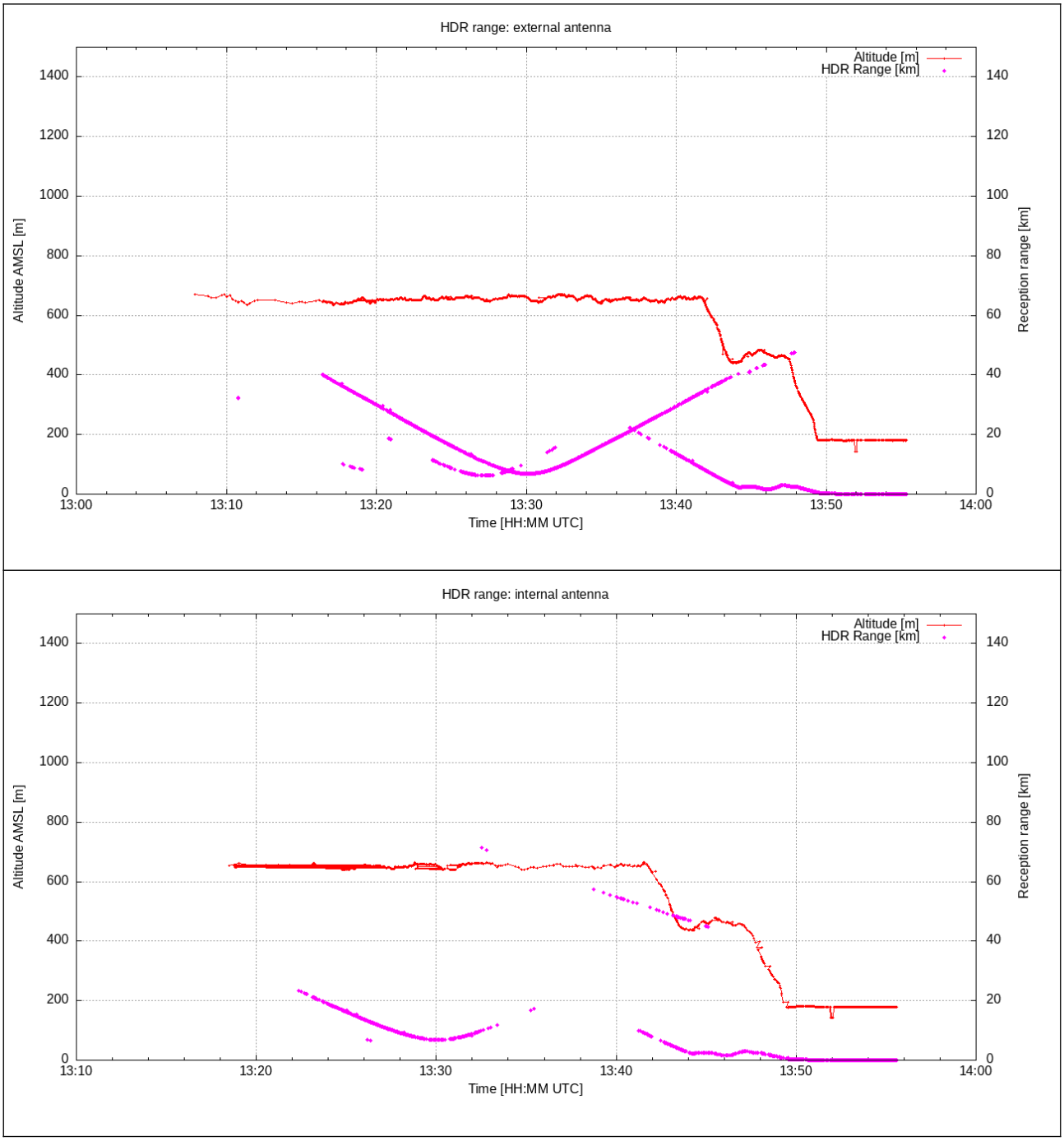
Reception range with internal antenna yields range shorter by a factor of 2 with unexpected directionalities which can result in range being actually longer in some certain directions.

Pictures and plots

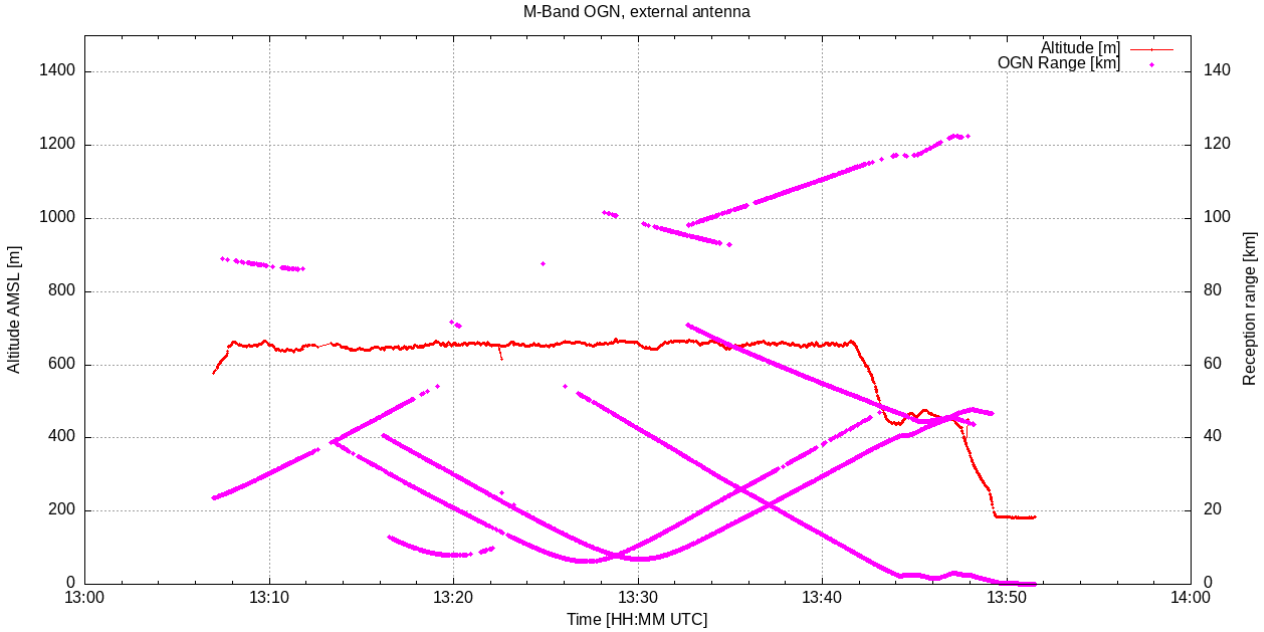


ADS-L HDR transmitter installed in “mobile mode” in the cockpit

ADS-L HDR-only transmitter installed in the cockpit, the coax leads to the external antenna at the bottom of the aircraft



Range plots for external and internal mounted HDR-only transmitters: external antenna provides clearly better coverage but see an unexpected long range signal around 13:40 from the internal antenna. The receiver in that case was on the same side and the seat the transmitter was strapped to.



Range plot for the M-Band OGN M-Band transmitter